

## High-Calcium Limestone GIS Layer

This GIS layer displays mapped geologic units having high-calcium limestone resource potential in Utah. High-calcium limestone typically contains a minimum of about 95% CaCO<sub>3</sub> and is used for a variety of chemical applications. Several limestone-bearing geologic units in Utah have potential for high-calcium limestone. Where possible, we used the most recent GIS data from 1:100,000-scale geologic mapping to build this layer. Where detailed mapping was unavailable, we used the 1:500,000-scale geologic map of Utah.

Typically, only specific zones within a geologic formation contain high-calcium limestone, so the entire mapped exposure is not always representative of the resource. Each polygon within the high-calcium limestone layer has the following associated attributes: geologic unit name, unit age, resource potential ranking, and geologic map reference.

All of the geologic units in the layer are assumed to have some resource potential for high-calcium limestone based on available data. We assigned a **“high”** or **“moderate”** resource potential ranking to geologic units in areas that have the most substantive data to suggest presence of high-calcium limestone resources. Our assigned resource potential was primarily based on past production, available analytical data, and unit descriptions from the source map. Positive elements of geologic unit descriptions typically include thick or massive bedding. Indications of chert or other siliceous material, thin bedding, or recessiveness often suggest that limestone may not have high-calcium potential. Definition of areas that were given a similar ranking was somewhat subjective, but typically was confined to individual mountain ranges; spatial distribution of analytical data was also considered. The general guidelines we used to assign potential are described below.

Typically, we assigned a **“high”** resource potential to limestone-bearing geologic units in areas where the unit has been a significant source of produced high-calcium limestone, extensive analytical data showing high CaCO<sub>3</sub> content are available (typically more than 15 samples), or a combination of some production and some analytical data suggest potential.

**“Moderate”** resource potential was assigned to geologic units in areas where the unit has been a more minor source of produced high-calcium limestone, some analytical data show high CaCO<sub>3</sub> content (typically five or more samples) and a positive description is present, or a combination of limited production and limited analytical data.

We assigned an **“undetermined”** resource potential to units where some data suggest potential, but the data are limited. These include limestone-bearing units in areas where only a few analytical data indicate potential, units that show potential elsewhere (based on analytical or production data) but limited or no data are available in the area, or units that have a positive description in the area but no additional supporting data. We also typically assigned an **“undetermined”** resource potential when only 1:500,000-scale mapping was available.

This is not an exhaustive dataset. Several limestone-bearing geologic units in Utah were not selected for this layer. These units may possess high-calcium limestone but existing data or general lack of data led us to exclude them from this dataset.

**NOTE:** Our determinations of high-calcium limestone resource potential DO NOT imply a determination of locatability for claim-staking purposes.

Data used to evaluate high-calcium limestone for this layer came from several published and unpublished sources.

**Useful references:**

Tripp, B.T., 2005, High-calcium limestone resources of Utah: Utah Geological Survey Special Study 116, 23 p., 7 appendices.

Tripp, B.T., Kirschbaum, M.J., Vanden Berg, M.D., Rupke, A.L., Gwynn, J.W., Boden, T., and Blackett, R.E., 2006, Chemical analyses of selected limestone, silica, and dolomite samples collected in northwest Utah, *in* Harty, K.M., and Tabet, D.E., editors, Geology of northwest Utah: Utah Geological Association Publication 34, CD-ROM, papers individually paginated, 16 p., 6 appendices.